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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,443	02/22/2002	John P. Millward	334-1-002	9392

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EXAMINER

SOOHOO, TONY GLEN

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,443

Applicant(s)

MILLWARD, JOHN P.

Examiner

Tony G Soohoo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-27, 30-34, 36-40, 41-45, 75-84 is/are allowed.
- 6) ☒ Claim(s) 28, 29, 35 and 46-69, 74 is/are rejected.
- 7) ☐ Claim(s) 70-73 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 060502.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 28-29 recite the limitation "the mixing pan and the pump" in line 3-4.

There is insufficient antecedent basis for this limitation in the claim.

3. Claim 35 recites the limitation "the mixing pan and the pump" in line 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 46-54, 55, 65-67 are rejected under 35 U.S.C. 102(b) as being anticipated by Palmer 5765945 (cited on IDS).

Palmer teaches a method, figure 8, and device whereby dry powdered supplement whereby the powder is a finely divided powder (column 2, lines 20-23 and lines 35-37) including gypsum is provided so as to be disposed in a main hopper chamber having an inlet 21 an outlet at the bottom and a generally inverted conical perforated funnel, see embodiment of figure 6, column 5, lines 66-67. a vertical fluid injector having wobbler deflector to produce a spray of the nozzle 28, 29, and the slurry is pumped for irrigation for watering crops. (it is noted that applicant also considers a

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wobbler deflector spray nozzle as being within the scope of a "spray nozzle" as evidenced by claim 16), also the spray from the deflector nozzle provides multiple sprays.". Palmer also shows a hand valve 19 and flow meter 20 which may be used to determine flow of water to the spray and funnel.

With regards to the method without the size of the gypsum powder being "micronized". The Palmer reference teaches that the powder should be small enough so that it passes at least a 95% of the powder passes through 200 mesh with is equivalent to about 74 microns. It is a commonly known fact that 200 mesh is about 74 microns (see applicant's specification page 18, line 13-14.) Thus the Palmer reference shows and fully satisfies the step of a provision of a micronized powder,

Additionally, whereby the teaching includes values at least 95% passes through 200 mesh, then this includes at least 95%, at least 90%, at least 75%, at least 50% of the gypsum power may pass through the mesh.

With regards to claims 53-54 whereby the claims are directed to a composition, any issues of how the composition is packaged or used is immaterial to the composition itself, since the bag which holds the composition or the place where the composition is deposited does not perfect the composition itself. Thus, the recitation of the language of claims 53-54 while being considered as part of the claim, however does not provide any patentable distinction to the composition itself.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 56-64, 68-69 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer 5765945.

Palmer discloses all of the recited subject matter as defined within the scope of the claims with the exception of ;

the step of spraying water a pressure of at least about 45 pounds per square inch (3 bars) gauge pressure, the step of water flow rates to produce the slurry and of the irrigation water such that an amount of gypsum used in the process exceeds the saturation point of the gypsum in water of about one pounds of gypsum per every fifty gallons of water,

the step of using a resilient annular seal disposed about a lower rim of the perforated funnel to seal against leakage of micronized particles between the perforated funnel and an interior surface of the main hopper

the step of using a funnel with respective perforations of a round hole of a diameter smaller than about one-eighth inch, or having an included angle of between

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about 20 to 60 degrees, or a perforated funnel which has a height of between about 6 to 12 inches or about 12 to 24 inches or between about 24 to 48 inches.

the step of pumping the slurry produced is conducted using a type of irrigation chosen from the group consisting of sprinkler irrigation, pivot irrigation, flood irrigation, drip irrigation, hand line irrigation, and wheel line irrigation.

the step of pumping the slurry produced is conducted using a diaphragm pump.

With regards to the step of spraying water a pressure of at least about 45 pounds per square inch (3 bars) gauge pressure, the step of water flow rates to produce the slurry and of the irrigation water such that an amount of gypsum used in the process exceeds the saturation point of the gypsum in water of about one pounds of gypsum per every fifty gallons of water, the Palmer reference teaches the use of pressurized water and the addition of water with the gypsum. Whereby it is known that water pressure provides fluid reaction for the nozzle, it is deemed that it would have been obvious to one of ordinary skill in the art to pressurize the fluid at any pressure such as 45 so as to produce an appropriate fluid jet nozzle flow from the nozzle opening. With regards to the amount of water to gypsum, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the ratio of gypsum to water as to the amount recited above so as to produce an effective powder saturation and produce a desired concentration for application to the agriculture.

With regards to the step of using a resilient annular seal disposed about a lower rim of the perforated funnel to seal against leakage of micronized particles between the perforated funnel and an interior surface of the main hopper, it is deemed that it would

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have been obvious to one of ordinary skill in the art to use resilient seals between joint surfaces of a fluid flow chamber, accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to provide an annular resilient seal at the lower portion of the funnel so as to prevent fluid leakage at the joining area of the funnel and the main hopper.

With regard to the shape of the holes, angle of the cone, or the size, height of the cone, and spray nozzle angle, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the shape to a circle, and angles, sizes and heights, to the range as recited above so as to produce a more effective spraying and screening of the material and provide sufficient openings for the powder flow and jet fluid interaction with the undissolved particles. It has been held a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Also, absent any unexpected result, a mere change in form or shape on the basis of suitability is a matter of obvious mechanical design choice. In re Dailey, 149 USPQ 47 (CCPA 1976).

With regards to using the slurry in a sprinkler irrigation, pivot irrigation, flood irrigation, drip irrigation, hand line irrigation, or wheel line irrigation. The recited manner of such irrigation is old and well known. Thus, it is deemed that it would have been obvious to one of ordinary skill in the art to provide the slurry produced by Palmer to fed into any one of a known manner of irrigation such sprinkler irrigation, pivot irrigation, flood irrigation, drip irrigation, hand line irrigation, and wheel line irrigation so that the slurry may be fed into the field in a more effective, cost efficient manner.

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With regards to the use of a diaphragm pump, the use of a diaphragm pump is old and well known in the art of pumps as a structural equivalent of a fluid pump. Accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute the pump of Palmer with a known functional equivalent structure such as a diaphragm type pump so that supply of fluid may be provided in a more effective manner.

With regards to claims 74, the Palmer reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of plural spray nozzles, note that the Palmer reference teaches plural jets spray from the deflector. It is old and well known that jets may be provide with plural openings to provide multiple spray jets. Accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute the plural jet spray deflector of Palmer with a functional equivalent plural nozzle jet spray so as to produce a more effective plural spray across the interior of the divider cone screen.

Allowable Subject Matter

8. Claims 1-27, 30-34, 36-40; 41-45; 75-84 are allowed.
9. Claims 70-73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. Claims 28-29 and 35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

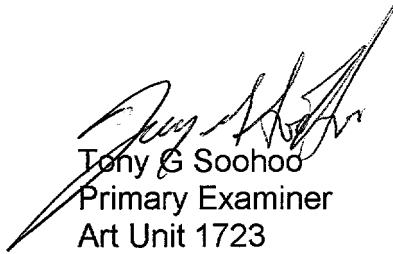
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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following disclose powder spray devices: Livingston et al 5229084, Arant 2604386, Moffat et al 4020865, Stine 2371720, Roach et al 5713384, Young 5007559.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G Soohoo whose telephone number is (703) 308-2882. The examiner can normally be reached on 7:00 AM - 5:00 PM, Tues. - Fri. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Tony G Soohoo
Primary Examiner
Art Unit 1723

**TONY G. SOOHOO
PRIMARY EXAMINER**